Coybean Digest

OFFICIAL PUBLICATION - AMERICAN SOYBEAN ASSOCIATION



APRIL + 1954

VOLUME 14 + NUMBER 6



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THE Soybean Digest

HUDSON, IOWA

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THE AMERICAN SOYBEAN ASSOCIATION

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safe-guarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the industry.

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THE TRADE MISSION TO EUROPE

By the time this reaches you I will be in the European countries as a member of one of the Agricultural Foreign Trade Missions

being sent by the United States Department of Agriculture. As a representative of the soybean industry I will be one of a group of men entrusted with the responsibility of analyzing the European markets for our products, the steps which we, as a nation, are going to have to take in order to continue and expand our export sales.

I am particularly interested in this mission for I see in it an opportunity for soybeans. With the largest crop in history staring us in the face, and with cottonseed oil supplies resting in the hands of CCC, the export market can be of great importance to soybean producers.

In visiting 12 northern European countries we will get a good cross-section of the buying potential of the fat and oil consuming nations of Europe. On two previous occasions I have visited this area, once as a representative of government, once as a private individual. Conditions have changed vastly since 1949, and even since 1952.

It is my hope that as a representative of soybean producers I can interest buyers in our products, and that my visitation will pay off in dividends for you and for the nation.

75-80 PERCENT SUPPORTS ARE FAIR BASIS

Many thinking people would have the nation adopt a program of abandoning all supports on all agricultural

commodities, allowing the law of supply and demand to govern.

Other people would abandon price supports on some commodities, keep them on others.

Representatives of this association, along with representatives of processors, met with CCC officials in Washington in January, and agreed upon a 1954 price support program for soybeans. The level was reduced from the previous 90 percent of parity support to an 80 percent level. The reduction was based on the assumption that cottonseed supports would be continued at the 75 percent level in effect in 1953, and was suggested in order to place the support levels on cottonseed and soybeans at comparable levels, and to allow American soybeans to compete in world markets.

At a joint meeting in Washington in late March cottonseed producers and crushers agreed upon a program of supports at 65 percent of parity, and recommended it to CCC officials.

Soybean processor representatives insisted at this same meeting that both soybeans and cottonseed should be supported at comparable levels. Representatives of your organization backed up that insistence. To support one commodity at 65 percent and the other at 80 percent does not do justice to either. The 75-80 percent basis on cottonseed and soybeans figures out to an equitable basis—equal parity figures unquestionably do give soybeans the edge in the markets. But a 15 percent disparity would be merely a continuation of the present bad situation on another level.

Unless the two commodities are kept in their correct relationship—unless the move to reduce cottonseed supports to 65 percent levels is overruled—CCC will find itself with huge quantities of 1954 crop soybeans, assuming a normal crop. I am relying on the good judgement of the CCC officials to keep commodity relationships at their proper levels.

WILL BE NO DELUGE OF 1954 BEANS

Guesses made in March are always hard to substantiate when they do not work out the following October. Guesses made

today on the 1954 soybean acreage can only be based on present information—and it is insufficient.

Mar. 1 planting intention figures indicate very low percentage of compliance with corn acreage allotments. Increases in soybean acreage in the corn area will be small—assuming normal weather for corn planting and normal survival of legume and grass seedings.

Total 1954 soybean acreage of slightly over 18 million acres does not seem to pose great problems in marketing. Assuming normal harvest for hay, forage and plow-down, it would give less than 2 million acres increase harvested for beans. However, several factors can still materially affect the 1954 acreage, including:

1—Weather. Abnormal weather at planting time for other crops will increase soybean acreage. Very good weather for planting other crops will decrease soybean acreage.

2—Seed supplies. Extremely low germination and shortage of good seed will limit the acreage.

3—Markets. Continued high prices tend to increase planted acreage of soybeans. Today's prices drive acreage upward. Should there be a price break acreage goes down accordingly.

4—Acreage allotment compliance. Unavailability of price supports to growers not meeting their allotments on corn, wheat, cotton may well, on afterthought, increase the compliance on those crops and push soybean acreage upward.

As a balancing factor, a good part of the 1954 acreage increase will come in areas not well adapted to soybean production, and will be in the hands of inexperienced growers.

At this writing there is not cause for great concern on 1954 soybean supplies, nor on prices. The fears of those who felt this was going to be the year of the great soybean deluge now seem unfounded.



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ACTIVITIES OF YOUR ASSOCIATION

TRADE MISSION. Geo. M. Strayer, executive secretary of the American Soybean Association, is a member of one of four trade missions the U. S. Department of Agriculture is sending abroad during April and May to investigate possibilities of increasing trade in agricultural products.

Strayer, one of 35 leading authorities on agricultural production and marketing invited to serve as consultants in the trade studies, is a member of the mission going to northern Europe. It will leave Washington Apr. 10 and return May 27.

Countries to be visited include England, France, Belgium, Holland, Denmark, Sweden, Norway, Germany, Austria, Switzerland, and possibly Finland.

Others who will take part in the mission are: head, F. R. Wilcox, Sunkist Growers, Los Angeles, Calif.; executive secretary, Horace Bolster, member of USDA's Foreign Agricultural Service; Berry Akers, editor-in-chief, the Farmer, St. Paul, Minn.; J. B. Hutson, Tobacco Associates, Washington, D. C.; James Klahre, Apple Growers Association, Hood River, Ore.; Chris Milius, Nebraska Farmers Union, Omaha, Nebr.; Ben Namm, Namm-Loeser's Department Store, Inc., Brooklyn, N. Y.; and W. R. Ogg, American Farm Bureau Federation, Washington, D. C.

Other missions will go to southern Europe, Asia and Latin America. Purpose is not to make trade deals, but to size up increased trade possibilities and report back to government officials.

MILK SALES. Soybean and cottonseed industry representatives will not oppose a U. S. Department of Agriculture plan to sell part of Commodity Credit Corp. stocks of dry skim milk for feed provided it is placed in feed channels before the movement of new crop soybeans and cottonseed begins, and all is utilized by Dec. 31.

Soybean processors estimate a shortage of 400,000 tons of protein feeds between now and the new crop movement. They believe a reasonable amount of dry skim milk can be placed in the feed channels without hurting the market for the oil meals.

The soybean and flaxseed and the cottonseed advisory committees met with USDA officials Mar. 25 to discuss the question. Members of the group were Ersel Walley, Fort Wayne, Ind., chairman of the ASA trade and use promotion committee, and ASA Secretary Geo. M. Strayer.

Feed manufacturers and the dairy industry were also to be consulted concerning the plan. (For further information see page 32.)

Strayer pointed out the dumping proposal does not solve the basic problem of the dairy surplus. "Buying of skim milk will continue at \$320 per ton and encourage greater production of skim milk," he said.

The oilseed advisory committee failed to agree on a recommendation concerning the level of the cottonseed support price, which the Department is expected to announce during April.

COMMITTEES. Standing committees of the American Soybean Association for the coming year have been announced by President Jake Hartz, Jr., as follows:

Executive committee: Jake Hartz, Jr., Stuttgart, Ark., chairman; Albert Dimond, Lovington, Ill.; Ersel Walley, Fort Wayne, Ind.; David G. Wing, Mechanicsburg, Ohio; and John Sawyer, London, Ohio.

Awards committee: Albert Dimond, Lovington, Ill., chairman; W. L. Burlison, Urbana, Ill.; and J. W. Hayward, Archer-Daniels-Midland Co., Minneapolis, Minn.

Convention committee: Jake Hartz, Jr., Stuttgart, Ark., chairman; Paul C. Hughes, Blytheville, Ark.; Coleman Crews, Keiser, Ark.; and Herbert Huddleston, Lamont, Miss.

Nominations committee: Chester B. Biddle, Remington, Ill.; chairman; J. E. Johnson, Champaign, Ill.; Albert Dimond, Lovington, Ill.; and Paul C. Hughes, Blytheville, Ark.

Resolutions committee: John W. Evans, Montevideo, Minn., chairman; O. H. Acom, Wardell, Mo.; Carl Simcox, Assumption, Ill.; LeRoy Pike, Pontiac, Ill.; Howard L. Roach, Plainfield, Iowa; John Sawyer, London, Ohio; Gilles DePutter, Appin, Ontario; and Herbert Huddleston, Lamont, Miss.

Trade and use promotion committee: Ersel Walley, Walley Agricultural Service, Fort Wayne, Ind., chairman; C. M. Gregory, Farmers Cooperative Co., Dike, Iowa; Carl Bostrom, Lowell Hoit & Co., Chicago, Ill.; Charles Schmitt, Beason, Ill.; David G. Wing, Mechanicsburg, Ohio; John Brown, Cypress Land Farms Co., St. Louis, Mo.; Coleman Crews, Keiser, Ark.; Walter Scott, Jr., Scott Plantations, Tallulah, La.; William King Self, Marks, Miss.; Ed Tillman, O. H. Acom Farms, Wardell, Mo.; E. M. Deck, Mrs. Tucker's Foods, Inc., Sherman, Tex.; F. H. Hafner, General Mills, Inc., Minneapolis, Minn.; and Howard L. Roach, Plainfield, Iowa.

BLUE BOOK. Latest authoritative information on the soybean crop and industry is presented in the 1954 edition of the Soybean Blue Book, published by the American Soybean Association, and off the press in March. The book comprises 160 pages and cover.

A new feature this year is a list and descriptions of most U. S. soybean varieties now in production and

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a map showing recommended varieties for most soybean production areas.

Assembled for quick reference are the latest available statistics on production, prices and utilization of soybeans, meal and oil, according to Geo. M. Strayer, secretary-treasurer. There are directories of soybean processors, oil refiners, and manufacturers using soy products in their operations, as well as firms offering their services and products to the soybean industry.

The book is available at \$3 per copy from the American Soybean Association, Hudson, Iowa. Members receive one copy without charge and may obtain additional copies for \$1 each.

THE COVER PICTURE

PET FOODS have grown into big business in the last decade. And the fact that they offer a substantial market for soybean oil meal and soy flour is not their least desirable feature from the standpoint of the soybean industry.

In fact, 45 million pounds of soy flour went into pet foods in 1953—or 61 percent of total production. The amount of soybean oil meal used by the industry is not reported separately, but several processors cater to this business. At least two of them put out a pearsize meal exclusively for dog food manufacturers.

Most dog food manufacturers still believe animal protein is essential in this type of ration. But almost all present day dog food rations, both dry and canned, use soybean oil meal or flour as a valuable source of protein, and often as the principal protein supplement.

The special problem of the dog food manufacturer is fat, as these rations call for more fat than other livestock feeds, primarily for energy purposes. For this reason, the Expeller-type meal is definitely preferred.

Some rations even include crude soybean oil, but because of its tendency to become rancid, mainly as an emergency measure.

Says Dr. Paul H. Phillips, department of biochemistry, University of Wisconsin, "Soybean oil meal is a good protein for dogs and can be used generously in the development of dog foods, though inadequate by itself for supplying protein requirements of dogs in reproduction.

"We have consistently used soybean oil meal as the principal protein in supplement for our dog nutrition work."

The boy on the cover shown with his pet Cocker is Robert Richards, son of Mrs. Doris Richards, Soybean Digest proofreader.





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WEED TROUBLE. Oley O. Robinson, Fowler, Ind., (second place winner with 44.9 bushels) says he had some trouble with weeds due to the field being very fertile.



FERTILIZER. Wilbur G. Kron, Evansville, Ind., (yield 42.4 bushels) believes it doesn't pay to fertilize beans, especially if the fertility level is fairly high. However, he applied 150 pounds of ammonium nitrate to the contest field last year, and fertilized the two previous years.



FILE HELPED. Norbert Stahl, Evansville, Ind., (yield 41.7 bushels) believes his tile drainage system helped in a dry year, as the ground dried out early so he could work the ground and plant with plenty of moisture, thus assuring a good stand. In a similar untiled field he got 16 bushels.



SPRAYED. Dwight W. Sewell, Otterbein, Ind., (yield 40.5 bushels) used a dieldrin spray for control of bean leaf beetle and says this was a large factor in his yield.



SPECIAL INOCULANT. Harold D. Yanney, Renwick, Iowa, (second place winner with 53.16 bushels per acre yield) inoculated his seed with equal parts of water and milk with the inoculant. The milk was to make the inoculant stick to the beans when dry. The beans were harrowed twice, gone over twice with a rotary hoe and cultivated twice. Field shown is not the contest field, but Hawkeyes that yielded 42 bushels per acre.

This Is Way Contestants Get High Soybean Yields

HOW DO the state yield contest winners grow soybeans?

What methods do the men with the high yields use, and how do they compare with the practices recommended by state experiment stations?

To find out, the Soybean Digest checked with 1953 Indiana and Iowa yield contestants. We asked all Indiana contestants with an average yield of 40 bushels per acre or higher and all Iowa contestants with a yield of at least 35 bushels to tell us what methods they used.

Ten responded and the following observations are based on their answers. We learned that in the main the man with top yield in the contests in these two states last year followed what are considered the best recommended practices—and made them pay off.

Four things stand out from the Indiana yield contest:

1—The use of fertilizers some place in the rotation was universal among those producing 40 bushels or more. In addition, almost half used manure. Their soil was in a high state of fertility. All used commerical fertilizers on their contest fields at least two of the last four years, and all but two applied fertilizers at least three of the four years.

2—Most used rotations that included small grain and clover in addition to corn and soybeans.

3—Most made more than the usual effort to control weeds. All planted in wide rows—36 to 40 inches—and

four of seven used the cultivator and/or the rotary hoe at least four times. Five used the rotary hoe in addition to the cultivator. One cultivated only once.

4—All grew recommended varieties adapted to the area. Those used were Lincoln, Hawkeye and Perry.

In addition:

All planted close to one bushel of seed per acre. Five of the seven Indiana contestants replying inoculated the seed.

Four planted at the average planting date for their locality, and three were early. Six of seven spring plowed.

Nobody used chemical weed control. One sprayed for insects and said this was a substantial factor in his results.

Iowans Similar

Only three Iowa yield contestants responded to our query. They used practices quite similar to those of the Indianans. All grew their contest beans on fertile land.

1—All applied fertilizers on the contest field at least two of the last four years, and most used manure in addition.

2—All used five-year rotations that included pasture, clover or alfalfa in addition to soybeans.

3—All cultivated two to four times and in addition used the harrow and/or rotary hoe. Row widths used were 34 to 40 inches.

4—All grew recommended and adapted varieties.

All Iowa contestants who returned the Digest questionnaire inoculated their seed. Rate of planting varied from 40 pounds to one and one-half bushels per acre.

Most contestants in both Iowa and Indiana reported below normal moisture conditions last year.

It is interesting that the use of recommended, adapted varieties among Iowa and Indiana yield contestants was universal last year.

It is also interesting that nobody among the yield contestants used narrow rows. They apparently preferred to take a slight sacrifice in yield in favor of the higher production efficiency and better control of weeds that is possible through standard rows. However, one contestant, Henry Preiser, Galveston, Ind., said he plans to use narrower rows in 1954, 21 to 28 inches. He made 42.3 bushels per acre with 40 and 32-inch rows in 1953.

Comments

Comments of contestants:

Harlan Parr, Fowler, Ind., (placed third in the state contest with a yield of 44 bushels per acre): "I believe heavy fertilizer and manure application made in 1952 had the most to do with my good yield.

"I was disappointed in that part of the corn field last year where I

put the 10-10-10 and manure but was sure pleasantly surprised this year with the way the soybeans responded to the residual fertilizer."

Paul Yegerlehner, Clay City, Ind., (yield 40.1 bushels) says the beans he grew in the Clay County contest were planted on ground that 10 years ago would not produce even 10 bushels per acre. The farm he operates was abandoned about 1925 and was not brought back into production until 1943, when it was largely overgrown with buckbrush and briers. He has been growing corn each year and using fertilizers.

John Halfpap, Belmond, Iowa, (yield 39.2 bushels) "I don't think there really is a secret about my success in raising beans.

"The land that I raised them on was in alfalfa in 1948-49-50 and I also fertilized it those years with 0-20-0 and also covered the patch with barnyard manure while in alfalfa, and plowed the third cutting under. Then in 1951 and 1952 it was in corn and fertilized these two years with 3-12-12

"They (the beans) were cultivated four times, planted in 40-inch rows, and were very clean of weeds and corn !

isting wells was \$1.25 to \$1.75 per acre per irrigation. This includes yearly depreciation of the well and power unit and cost of surveying and erection of levees.

In the principal irrigated area around Kearney, Nebr., there were a few yields of 50 bushels per acre and several around 40, under conditions where corn land burned up, according to Donald G. Hanway of the department of agronomy, University of Nebraska. "Our irrigated test plots in that area ranged in yield from 30 to 46 bushels per acre,' savs Hanway. "I heard indirectly that one dry land field in that area yielded 15 to 17 bushels."

Hanway reports that irrigated beans at Scotts Bluff Experiment Station in extreme western Nebraska yielded about 40 bushels per acre; and at the North Platte Experiment Station the average 'yield of a variety-row spacing trial was 36 bushels per acre.

At the main experiment station at Lincoln vields were approximately doubled through sprinkler irrigation, which was applied three times between July 1 and Sept. 2, according to Hanway.

"Adequate fertility is very important if high yields are to be realized through irrigation," he says.

Soybean yields were highly variable in Missouri Experiment Station trials with irrigation at two locations in 1953.

On the McCreedie field, irrigated beans produced 31 bushels compared to 17 bushels an acre where no water was applied. High-level soil treatments were used in both cases. Soil moisture dropped to a critical level in mid-August so the beans were irrigated Aug. 21 with more than four and one-half inches of water. Irrigation delayed maturity only two or three days

But irrigation trials at the Campbell field did not show up as well. The beans were damaged by high, dry winds and yields were low on all

Beans irrigated through Augustwith six applications of water-pro-

Some Tried Irrigation in 1953

IRRIGATION. Following the last two dry seasons and with increasing evidence that we are in the dry part of the weather cycle, producers show increased interest in the irrigation of soybeans. Soybeans are not hurt so badly by drought as some other crops, but irrigation will substantially increase the yield under some conditions, at least.

Soybeans were irrigated in 1953 in locations as far apart as the rice lands of Arkansas, the Missouri Experiment Station and Nebraska.

Reports are that irrigated soybeans in the Arkansas rice section produced double or more the yield of non-irrigated fields in 1953.

Says Larry Burns, Jonesboro, Ark.: "Last year it was necessary to irrigate my entire crop three times. This produced an average field yield of 30 bushels and as high as 40 bushels of well developed, high-germination soybeans. My probable yield without irrigation would have been 10 bushels of doubtful germination.

"The only ill effect of the irrigation was an extremely rank bean, which lodged badly as a result of the last irrigation," says Burns. He figures his cost of irrigation with ex-

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duced 10 bushels per acre. Those receiving only one irrigation in June made two bushels per acre. The unirrigated beans made three and one-

half bushels per acre.

Referring to the work at Mc-Creedie, Dr. D. M. Whitt, who conducted the studies, says that soybeans have not been responsive to irrigation there in studies dating back to 1948, with the exception of last year.

WEEDS. Chemical weed control in soybeans has not been fully dependable, according to the research committee of the North Central Weed Control Conference. The committee

recommends no post - emergence sprays for soybeans, but pre-emergence treatments offer possibilities.

DNBP (Dow Premerge) at four to six pounds per acre (approximately six to twelve quarts) has given the most consistent results as a preemergence herbicide for soybeans, according to the report.

CIPC at four to eight pounds has also given good results as a preemergence treatment. The lighter rates of each chemical are recommended for the lighter type soils.

As with all pre-emergence herbicides, the results will vary with weather conditions.

SEED INJURY. Much low germination of 1953-crop soybean seed is due to mechanical injury, Mrs. Berniece Michael, manager of the Illinois Crop Improvement Association, points out.

Due to the hot and dry weather, The moisture content was extremely low at harvest time, making the beans more susceptible to mechanical injury," she says. Dry beans, says Mrs. Michael, simply cannot take rough treatment and must be handled with extreme care to protect the seed coat from injury.

'If there is any doubt that beans are easily injured, dropping a few beans for a distance of one foot will crack the coats," she says. "And once cracked, the seed germ is doomed."

- s b d -





Three soybean producers who operate in the nation's heaviest soybean area are left to right, Bert Downey, W. O. Turner and C. L. Piatt, all of Monticello, Ill. They farm in Piatt County in the heavy production area of east central Illinois. The county produced 1.6 million bushels of soybeans in 1952.

In the background is Monticello Grain Co., one of the leading outlets in the area. Manager of the grain company is William Henebry.

The firm has four elevators or receiving points and handles an annual volume of 250,000 bushels of soybeans. Storage capacity now totals 226,000 bushels and the firm is in process of building another 100,000bushel storage.

Like most other places, the crop here suffered from drought in 1953.



FORT WORTH HI-CAP buckets are designed for high-speed elevators, although they may be used for replacements in old elevators where increased capacity is required. They are suitable for use in either chain or belt elevators and will discharge properly at high or medium belt speeds. They may be spaced on very close centers, or continuous.

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> SECOND LOOK AT ACREAGE

Hudson, Icwa, Apr. 8, 1954

Washington officials believe there will be greater compliance with corn acreage allotments than was indicated by the Mar. 1 "prospective plantings" report of the U. S. Department of Agriculture. This would mean more soybean acres than the 2 million increase indicated. They point out this happened in 1950, also that farmers had not been advised as to their actual corn allotments when the intentions report was made out.

Private forecasters apparently go along. They look for more than the 2-million-acre increase. But they discount USDA's indicated production of 340 million bushels for 1954 based on 1948-52 average yield. They point to drought, poor seed and the fact that many new acres will be marginal land.

MOISTURE OUTLOOK Moisture prospects during the 1954 growing season are not bright at this time. Subsoil moisture is still deficient over the whole of the soybean belt with few exceptions. Recent tests in Iowa and northwest Illinois show that moisture in the top five feet of soil is only about one-half of normal, according to the Weather Bureau. Wallaces' Farmer points out that dry summers follow dry winters three years out of four.

Outlook for south central and southeast Arkansas: "Actually we are not having the increase on soybeans that we anticipated 30 days ago," says Jake Hartz, Jr., Jacob Hartz Seed Co., Stuttgart, Ark. "We believe that the lowering of supports to 80 percent has affected somewhat the farmers' intentions. Higher basis supports on rice and re-allocating of cotton acres has cut into intended planted acres of soybeans."

1954 CROP PRICES Some Illinois grain dealers have already established a market for 1954-crop soybeans. They have been offering to contract for No. 1 yellow beans to be delivered at harvest for about \$2.35. L. J. Norton, University of Illinois farm economist, feels that prices could easily be higher than that at harvest time. J. E. Johnson, Champaign, Ill., recalls that new crop beans sold freely at \$2.40, or 16 cents below support last year at this time. But this year many are not interested in selling at \$2.40, or 18 cents above support.

BUTTER



It may be late April before the Department of Agriculture announces its surplus butter disposal plan. Secretary Benson told a recent press conference that when it came to working out a specific program USDA ran into more difficulties than expected. He now wants to wait until details are complete before announcing his program.

In the meantime, USDA has announced an educational program aimed at using up more dairy surpluses, particularly butter, and encouraging greater culling of dairy cows.

SALES OF SKIM MILK

Announcement that Commodity Credit Corp. will offer a big part of its dry skim milk stocks to feed manufacturers for sale as hog and poultry feed is expected any day. A price of 3 to 3½ cents a pound has been discussed. Free market price has been \$210 to \$220 a ton as compared to government support which has dropped from \$335 to \$320 Apr. 1. We are told most feed mixers are waiting CCC's action before building up stocks of soybean oil meal. If dried milk program is delayed, demand for meal may increase to point where nearby supplies would be inadequate. Many processor plant closings may exaggerate this shortage and create a real problem, one observer points out. Any ever-supply could become a real shortage without much increase in demand.

COTTONSEED

Level of price support for cottonseed produced this year is still not settled, though cottonseed industry men appear to have given up trying to eliminate the support program, and producer sentiment seems to favor retaining the present 75-percent-of-parity level. Jackson Hunter, member of the Missouri Cotton Producers Association's board of directors, is quoted as being of the opinion that producer opposition will prevent Secretary Benson from setting the support level on cottonseed below 75 percent of parity. Hunter represented Missouri cotton farmers in Washington at the recent conference on cottonseed price supports.

Soybean industry representatives are strongly opposing any lowering of the cottonseed price support in view of the 80 percent support already announced for soybeans. (For more information see pages 4, 6 and 00.)

DEMAND FOR SEED

Demand for soybean seed has been very active but has tapered off the past two weeks, reports Jake Hartz, Jr., Stuttgart, Ark. He says the movement of seed has been much earlier than normal and that there is not enough really good seed to plant the intended acres.

Though really high germinating seed is non-existent over much of the soybean belt, germination is normal in some areas including the eastern seaboard states. Ohio and Ontario.

Commodity Exchange Authority has called for brokers to supply names and positions of individuals in the soybean futures markets as of Mar. 31, a not unexpected move in view of the steep price rise and heavy futures trading.

Cash price to farmers for No. 1 soybeans Mar. 31		Cash price to farmers for No. 2 soybeans Mar. 31	Retail cash price for bagged soybean oil meal Mar. 31
Ala		\$3.10	
Ark	*****	3.20	\$ 95
Ga		3.00 @ \$3.20	100
Ill	\$3.54	3.51	100
Iowa	3.33 @ \$3.35		96 @ \$107
Ky	0.40		102.50
Mo	3.30	3.20 @ 3.28	
N. C		3.30	
Ohio	3.42		100
Okla	3.20	3.20	95
Va	3.18		
Ontario	3.32 @ 3.34		

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GOOD WEED CONTROL in soybeans is still possible without chemicals

—and less expensive.

I-IN THE NORTH

By E. P. SYLWESTER

Iowa State College

TREMENDOUS strides are being made in weed control in all phases of agriculture. Whether it is pasture weed control, or control of weeds in corn or soybeans, modern technology has evolved much better methods of both cultural and chemical weed control than were in use 15 or 20 years ago. While this statement seems rather farfetched in some instances, if one just thinks of the methods of weed control in use 20 years ago and then compares them to the present time the change will be apparent.

Use of better machines, better timing to do the job, striking at the weeds when they are in the most susceptible stages, more speed of cultivation, a better knowledge of the life history of the weeds in question, use of some new, right implements at the right time, all these have combined to give cultural weed control a "new look." And the chemical control of weeds, based on supplementing the cultural, has grown even more phenomenally.

Cultural and chemical weed controls alone, of course, do not go the entire distance. They work best only for the producer in combination with other recent advances in agricultural technology, such as soil conservation, use of the best adapted varieties, wisest use of the best ro-

tations, judicious use of the necessary fertilizers and lime, the best use of the necessary insect control practices, the best methods to incorporate organic material into the soil, the best varieties showing insect and disease resistance or fortunate combinations thereof, and so on and on.

You say, "That's an imposing list. How is weed control related to these?" Let's illustrate it in this way.

Suppose you did an excellent job of weed control in your soybeans this year. Suppose you had controlled the weeds to the extent that there were only a dozen weed plants per acre. Certainly you would have made more water and minerals and living space available to the soybean plants than would have been the case had the field been overrun with weeds. Because of this excellent weed control your yields have been increased.

But the full value of this excellent job of weed control is not realized if sufficient minerals are not present to enable the soybeans to take full advantage of the increased living space, of the increased water. And in like manner, while you can't control the weather and moisture that falls in the form of rain you can increase the water holding and absorbing capacity of the soil by judicious soil conservation practices, that enable more water to walk instead of run, to enable it to move slower, and be absorbed more, and this in turn is dependent on a good program of incorporating organic

material into the soil, to make the soil look like a sponge instead of a board. And likewise you can expend yourself and have the crop weed free, but if you don't protect it if need be, from the attacks of injurious insects, your work has largely come to naught.

Other Things Needed

So weed control in soybeans works best and gives the grower the biggest returns, in conjunction with, and as a supplement to, these other good stable, valuable, proven and indispensable agricultural practices.

Specifically what can we do to practice the best possible methods of weed control in soybeans for '54?

Let's start with fall plowing. This is an aid in weed control, provided that no danger of wind or water erosion exists on the area as it overwinters. Late summer or early fall plowing encourages weed seed germination. Watch these seedlings closely. If they start to form heads, and if you realize that weed seed is likely to be produced before frost, harrow or disc the area to prevent all such weed seed formation. This depletes the amount of weed seed in the soil, makes your job of weed control easier next year.

But suppose you start your seed bed preparation in the spring. Plow as early as possible, as soon as the ground is friable enough to work thoroughly. Under no circumstances should you "puddle" the soil or cause formation of clods. Such clods incorporate weed seeds. Inside of such cloddy prisons these weed seeds do not germinate. These clods survive cultivation, and as they remain in the field after repeated discings, harrowings, and cultivations, they gradually disintegrate, and serve to release weed seeds for germination throughout the season. This means weedy fields for you in spite of good efforts at weed control. So don't overwork fields for crops while the soil is too wet.

After plowing, disc or harrow the area thoroughly. If you have fall plowed land, disc and harrow thoroughly enough to kill all young weeds and seedlings. Now come critical, very important, and yet very simple, cheap operations, namely repeated harrowing.

We can't overemphasize repeated shallow harrowing. It should always be done on dry, warm days. Such harrowing stirs the soil, and encourages weed seed germination. The young seedlings are killed out, because they are exposed, and since they are very young and succulent,

Control . . . 1954 EDITION

a few hours of sunshine and warm dry weather makes good weeds out of them—namely dead weeds.

Don't harrow any deeper than you intend to plant the soybeans. Avoid bringing up additional weed seeds into the top layers of the soil where conditions for germination are favorable. And don't spare the spike tooth harrowings. It is the most important, single, effective and effective and cheap method of cultural weed control available to you. Harrow shallow at intervals of a week or so whenever weather conditions are ideal. Do it as fast as your equipment permits. Every weed you kill at this stage is one less to worry about later on. And if you kill a million of them-and you willthere will be a million less to worry about later on. Harrow before the crop is planted, harrow after it is planted and before it is up, harrow even after it is up and has attained a height of three to four inches.

After the crop is up, you will kill a soybean plant here and there. Don't worry about it. For every soybean plant that is killed, a hundred weed seedlings will bite the dust. And soybeans have the happy facility, that if a few are killed, the remainder compensate for their brothers' demise, and produce more—so the eventual yield is not affected in the least by the killing of a few soybean seedlings early in the

Harrow when it is warm and dry, when the soybean plants are a little wilted and more limber, preferably in the afternoon

Now comes the "teen age" stage for the soybeans. They are up in rows, four to six inches high, a little bit too tall to harrow. Now comes another critical operation and the best machine for it is a rotary hoe. I can well remember the first one I ever saw. The man who bought it was-to put it mildly-completely disgusted with it. He depended upon a slow moving tractor for power. He just wasn't able to go fast enough. It wasn't until several years later when tractors moved faster, when this same man, along with thousands of others, got the same machine back out of the shed, operated it at higher speeds and began to realize the full value of the imple-

Last spring I talked with a farmer near Jefferson, Iowa, who was doing a beautiful job of weed control in soybeans using a rotary hoe. Unfortunately I've forgotten his name. In conversation with him, I guessed the speed of the tractor at about eight miles per hour. "No, it's about 10 miles per hour," he replied, "and if the ground (which was somewhat soft and composed of peat), were just a little firmer I'd like to go 12 miles per hour. That would do even a better job." And to show you how much more farmers right now know about the critical stages of weed control, he added, "If sickness hadn't prevented me, I would have been in here about a day and a half ago and then I could have done even a much better job than what I'm doing now, since the weeds

would have been just a little smaller and just a little easier to kill."

But even at that he was killing 99.5 percent of the weeds effectively and cheaply. Next to the harrow, the rotary hoe is the most important weed killing implement at the disposal of the soybean grower.

Repeated Cultivation

After the soybeans have passed the "teen age" stage, repeated, shallow, thorough cultivation is in order. Cultivation must be repeated to catch later germinating weed seeds. It should be repeated until the beans shade in between the rows so as to keep later germinating weeds suppressed.

And remember, in spite of the fact that we often hear that the only function of cultivation is to kill weeds, that many of us feel, know or suspicion that a certain invisible, intangible "something" is added to the tilth of that land by repeated cultivation. Cultivate when weeds are present and young, but not oftener. But it should be judiciously done. There is no need of doing it if the ground between the rows is already loose, easily penetrated by moisture, well aerated and weed free.

So don't cultivate just for the sake of exercise. But if there are weeds between the rows, if the rows aren't completely shaded, cultivate. It will pay big dividends. Always shallow, to avoid bringing up additional weed seeds, and to avoid

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I would guess that average yields could be stepped up 10 or 15 bushels per acre if weeds could be eliminated from the field. — R. E. Hodgson, superintendent, Southeast Experiment Station, Waseca, Minn.

"pruning" the roots of the soybeans, and as often as necessary.

And after the crop is laid by don't be too disappointed if right directly in the rows you still have a few scattered milkweeds, cockleburs, sunflowers, pigweed, lambsquarter or smartweeds. If you have expended yourself on the spike tooth harrowing and the rotary hoeing, the chances are pretty good that there will not be too many of these nefarious weed pests. A little time spent hand rogueing these individual pests will pay big dividends, perhaps very little from the standpoint of actual increased crop yields but from the standpoint of your own conscience and your own pride in knowing you have a clean field, a source of pride and satisfaction, an asset to your farm and community.

Remember, too, that one average cocklebur or sunflower, allowed to produce seed will give rise to 500 to 1500 seeds and that prevention of such seed production is part of a package of good farming. It should be a farm, a community, a county, a state package.

Chemical Weed Control

Now let's turn to chemical weed control in soybeans for a moment. There isn't too much at present in the chemical line which can be used as a supplement to the good cultural control methods outlined above. Should we cry about it? Far from it. The pre-emergent sprays which have shown promise, (and some of them have) are to the last one more expensive to use than are even several repeated harrowings or rotary hoeings.

To work best, the pre-emergent sprays have to have excellent seed bed preparation, super excellent if you please. Then they must be evenly and conscientiously applied. And then the thing which really governs success or failure in the last analysis is completely beyond the control of the operator and that's moisture intensity and distribution as well as temperature.

And remember, too, that the line of chemical demarcation even under optimum conditions is pretty fine. Most of the chemicals which will control the weeds will also injure the soybeans if injudiciously applied, if applied at the wrong time or if rain comes at the inopportune time, or if applied in overdoses.

One of the most promising chemicals perhaps is DNOSBP, (dinitro ortho secondary butyl phenol) a dinitro material. In 1952 in conjuction with the Dow Chemical Co. we tried this on extension demonstration plots in Woodbury, Sac, Cerro Gordo, Wright and Tama Counties.

The four-pound-per-acre rates of the material (Dow Premerge) were not heavy enough to control the weeds. Almost the same thing could be said about the six-pound-per-acre rates. However, the eight-pound and especially the ten-pound-per-acre rates gave good weed control last year with no serious damage to the soybeans. However, from previous work, injury occurred to soybeans at rates higher than 10 pounds per acre. So the safe application of this material lies somewhere around eight to ten pounds per acre.

It is best applied on a beautiful, well prepared seed bed, two or three days after the beans are planted, but before any of them are up. It is a contact chemical, so even if a few tiny annual broadleaf or grassy weeds are up, that is all the better since they are killed at that time. Furthermore there is enough deleterious material left in the immediate top layer that extremely tiny germinating weed seedlings are sometimes severely injured or even killed. At any rate it gives the soybeans a head start over the weeds present.

The drawbacks to the method are that it is expensive at the necessary rates (\$10 to \$15 per acre blanket spray) at the present price of chemicals and also it must be applied before any of the beans are up otherwise injury will occur to the beans. But it has promise and can be used if necessary on "problem land," such as overflow land at the present time.

Furthermore, if heavy beating rains occur, the chemical is diluted to the extent where it is dissipated and non-effective, and the splashing rain, with the material may cause injury to young germinating soybean seed-lings

Work is continuing with the dinitros, and with other chemicals and some day no doubt we will have a cheaper, more reliable chemical to use effectively in soybean weed control, both pre-emergence and postemergence. But that day is not yet. We have a start on pre-emergence weed control in soybeans. It isn't perfect. It has flaws and drawbacks. But remember if worst comes

to worst, we can use dinitros in soybeans if we really have to do it. Application only over the row (band spraying) makes it cheaper but of course does not eliminate weeds between the row. This may make for weedier fields later on.

Even though chemicals as such are not in the picture as yet for reliable soybean weed control, what has been said here is in no way derogatory to the use of chemicals for soybean weed control. Control of weeds in soybeans through chemicals is a "tough nut to crack" and investigators and chemical companies should be paid a real tribute for their untiring work and endeavor in this direction. Some day we will have a better answer.

Pre-emergence sprays will continue to give inconsistent results with the chemicals now in use because we can't control the weather. Several chemicals, the dinitros and 3 chloro IPC and several others, all deserve further experimentation and testing.

Summing Up

So in summary in soybean production for the immediate future place your greatest reliance on good cultural methods of weed control, thorough seed bed preparation, repeated harrowing, shallow cultivation and implement *such thorough, repeated practices by limited hand rogueing where feasible.

Do a good job of weed control on all your land every year. Remember that the land which may be in flax, corn, or meadow this year usually will be in soybeans some day. If weed seed production or weed establishment is prevented in those areas with chemicals and cultural methods today, your problem of soybean weed control will be easier tomorrow. Control weeds wherever found on your premises. Remember weeds spread.

And if you are one of the few that figures that this is the "chemical age," that weed control can no longer get along without chemicals and if you absolutely have to raise soybeans on land which year after year has always presented a weed problem, try a little experimenting on a one-fourth or one-half acre or so of the worst annual weed infested land you have. Use eight or ten pounds of dinitro material on an acre basis applied as a complete "blan-Apply on a good seed bed as evenly as possible after the beans are planted but before they are up.

You haven't got much to lose and you will gain valuable information as to how these materials will perform on your farm and under your own specific conditions. But don't risk chemicals on large areas as yet. Rely on thorough, cultural weed control.

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Weed Control—(Continued)





ADVANTAGE of later plantings is shown in these two pictures. Above, soybeans from early May plantings. Note how heavy shade has helped keep beans free from weeds. In lower picture is the same variety but planted in early April. Note stunted growth and severe competition from annual grass.

II-MISSISSIPPI DELTA AREA

By EDGAR E. HARTWIG1

MOST visitors driving into the Delta area of Mississippi are impressed with the number of weedy soybean fields. The answers as to why weeds are so prevalent are numerous. In the first place, soybeans are usually grown on land that was the poorest cotton land. Until soybeans were planted, much of this land was idle, especially in years in which the cotton acreage was reduced. On those idle acres, Johnson grass, coffee weeds and miscellaneous other weeds and grasses were permitted to grow unmolested and produced an abundance of seed.

Thus, the soybeans are planted on land that had become very weedy. Furthermore, in much of the Delta, cotton is the primary cash crop and receives first attention. This is understandable, but too frequently soybeans are planted and receive no further attention until harvest. Naturally, seed yields are low because of excessive competition from weeds.

More efficient control of weeds will come from learning how to let the soybean plant help itself keep down the weeds. Time-of-planting studies conducted at the Stoneville Station have demonstrated that if soybeans are planted Apr. 10, they will require at least two weeks to come up and will have only 65 percent as much growth at 42 days after emergence as beans planted in early May. The May plantings will come up much faster. With faster emergence and more rapid, early growth, the ground will be shaded more rapidly. Weed seedlings need light to grow. If planting is delayed until May 1, cotton planting will usually be completed. Planting soybeans after cotton planting is completed is much more satisfactory than planting before cotton planting is begun.

In addition to making more rapid, early growth, plantings made after May I have more total growth and give higher seed yields than the earlier plantings. Adapted varieties, such as Ogden and Roanoke, planted

in early April, respond to the short days and begin flowering too early. Frequently, their growth is stunted in these early plantings and the row middles are not completely shaded. With incomplete shading comes additional weed growth. Stunted growth from early plantings is very evident in the lower Delta area of Mississippi and in northeast Louisiana.

Good uniform stands of 10 to 12 plants per foot also aid appreciably in getting rapid, early growth.

Needless to say, destroying all weed growth prior to planting is essential to having a weed-free soybean field. Fields have been observed where soybeans were being planted and Johnson grass 12 to 15 inches tall had not been disturbed. These soybeans never had a chance.

Along with planting at the proper time and planting sufficient seed, the proper use of a rotary hoe aids materially in eliminating annual weed seedlings. However, a majority of the soybeans are planted on the Sharkey Clay soils which frequently are very cloddy at planting time. The rotary hoe does not operate as satisfactorily in a cloddy clay soil as in a sandy loam soil.

One of the most troublesome weeds, Johnson grass, has large food reserves in its fleshy rootstocks and is not disturbed by a rotary hoe. Neither can it be removed too well by cultivation. On land heavily infested with Johnson grass, a program of summer fallow appears to be the most efficient manner of control. This can be handled best by seeding small grain after the soybeans are harvested and beginning fallow in June after the grain is harvested. On sandy loam, Johnson grass can be reduced appreciably by fallowing from April until about June 20 and then planting a late variety such as Roanoke. Excellent yields can be obtained from these late plantings. Growers planting soybeans on land heavily infested with Johnson grass are cautioned that a heavy growth of Johnson grass will cause more difficulty in combining a September-maturing variety than it will in late October when the grass is nearly

Coffee Weed

Another vigorous weed is the coffee weed, Sesbania macrocarpa. Under good conditions, this weed grows six to eight feet tall. At maturity it is woody and difficult to run through a combine. Coffee weed seedlings are easily eliminated with a rotary hoe or by close, early cultivation. Coffee weed seedlings do not grow well in heavy shade. Coffee weed is usually more prevalent on the clay soils than on sandy loam soils.

¹ Agronomist, U. S. Regional Soybean Laboratory, Stoneville, Mississippi.

The common, red-rooted pigweed, locally termed "careless weed," also grows very rank. This weed is most prevalent on sandy loam soils. By practicing late planting, several crops of seedlings can be destroyed before planting. Timely cultivation will take out most of the pigweeds, but on heavily infested fields, hand elimination must supplement the best cultural methods.

Additional annual weeds, such as crabgrass and morning glories can also be controlled with timely planting and cultivation. Where these weeds are most troublesome is where they have been permitted to get started with the beans or where the soybeans are planted too early to permit them to make rapid growth or give complete shading of the row middles.

Chemical Sprays

Limited experimental work on control of weeds in soybeans by use of chemicals has been conducted for several years at the Delta Station. The results have not been too promising for most of the problems that were involved. None of the chemicals tested have effectively controlled Johnson grass. On the clay soils, where most of the soybeans are grown, the surface will crack in drying and weed seedlings will germinate from the cracks. Consequently, no pre-emergence treatment program tested to date at this station has given satisfactory weed control on the clay soils.

On the sandy loam soils, preemergence treatment with dinitro has frequently reduced stands appreciably. Isopropyl N-(3 chlorophenol) carbonate (CIPC) has looked promising but will be more expensive than if the job can be done with a rotary hoe. Perhaps the most promising material is a non-fortified oil applied with a laterally directed spray when soybean plants are 12 to 16 days old. Only one application may be used. At present prices, material for this treatment will cost approximately \$1.75 per acre.

Flame cultivation does not appear to have a place in an efficient soybean production operation. Killing plants with a flame depends upon differential tolerance of plants to heat. Soybean plants must be about 15 inches tall before the stems have become woody enough to tolerate much heat. At this height, a good stand of beans will be giving sufficient shade to prevent small weed seedlings from becoming established in the row. Weeds in the row that started with the soybeans will stand just as much heat as the soybeans and, consequently, will not be eliminated.

January Margarine Production a Record

Margarine production for the first month of 1954 set a new January record and reached the second highest monthly total in the history of the product, according to S. F. Riepma, president of the National Association of Margarine Manufacturers.

Some 131,959,000 pounds of margarine were produced in January,

according to Bureau of Census figures. The only monthly output ever to exceed this was the 136,217,000 pounds manufactured in October 1953.

January margarine production topped that of creamery butter, which was 118,465,000 pounds.

Mr. Riepma estimated that if the margarine production rate set in January continues throughout 1954, the year's output will likely exceed the record-breaking: 1,292,000,000 pounds turned out in 1953.



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Plan 2 Million More Acres

ACREAGE OF soybeans planted alone for all purposes in 1954 will be at a new high if growers carry out their planting intentions as expressed on Mar. 1, according to the U. S. Department of Agriculture crop reporting board.

Here are the official figures: Indicated 1954 plantings 18,075,000 acres, up roughly 2 million from last year's

16,085,000 acres.

Figures are strictly preliminary. Estimates may be wider of the mark than usual this spring, due to weather conditions and resumption of acreage allotments. (Mar. 1 planting intentions in 1953 were within 200,000 of the acreage actually planted.)

Soybean acreage increases are general in all producing areas. Two main factors have contributed to the intended increases — diversion of land from wheat, corn and cotton because of the acreage control programs on those crops, and the currently favorable soybean prices. Each of the heavy producing North Central states indicates increases, except Kansas. In that state, the very severe drouth of last year cut yields per acre to the lowest level since 1939.

The major producing states indicate increases ranging from 2 percent in Indiana and Missouri to 30 percent in Minnesota, with Illinois at 9 percent and Iowa at 20 percent. Sharper percentage increases are reported in the fringe states of North Dakota, South Dakota and Nebraska.

A moderate increase over last year is indicated in each of the South Atlantic states. North Carolina, the heaviest producer in the area, plans an increase of 5 percent. The South Central states expect the sharpest increase over last year of any producing area. Much of the increase comes in the Delta area of Mississippi, Arkansas and Louisiana, where cotton acreage will be reduced because of acreage allotments.

Growers do not report on the acreage of soybeans intended for harvest as beans on Mar. 1 and no forecasts of such acreage of production are made at this time. However, if the intentions are carried out for soybeans planted alone for all purposes and about the same proportion of the total acreage of soybeans is harvested for beans as in the last three years, 16.2 million acres would be harvested for beans.

		Acreage	planted 1/	
State	Average 1943-52	1953	Indi- cated 1954	1954 as percent of 1953
	Th	ousand ac	res	Percent
N. Y	11	7	9	129
N. J	37	41	42	102
Pa.	67	37	39	105
Ohio	1,108	1.064	1,202	113
Ind.	1.693	1,853	1.890	102
III	3.803	3.907	4.259	109
Mich.		118	126	107
Wis		70	84	120
Minn.		1.400	1.820	130
Iowa		1.617	1.940	120
Mo	1.022	1.963	2.002	102
N. Dak		23	46	200
S. Dak.	42	90	162	180
Nebr.	43	103	167	155
Kans		598	556	93
Del	67	72	80	111
Md.		115	138	120
Va		231	245	106
W. Va	21	9	10	111
N. C		397	417	105
S. C.		150	190	127
Ga.	73	100	105	105
Fla.		17	20	118
Ку	. 198	200	200	100
Tenn.	246	258	271	105
Ala		149	164	110
Miss		494	652	132
Ark.		800	1,000	125
La		117	152	130
Okla.	46	75	80	107
Texas	_ 11	5	7	140
U. S	13,523	16,085	18,075	112.4

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Milner to Urbana

New head of the food technology department at the University of Illinois is Dr. Reid T. Milner, who has been director of the USDA Northern Regional Research Laboratory at Peoria.

Milner served on the University faculty from 1936 until 1941 during which time he helped set up the Regional Soybean Laboratory at

Urbana. In 1941 he went to the Peoria laboratory to take charge of the analytical and physical chemical work



Milner

and is recognized as one of the nation's leading soybean oil chemists.

Milner succeeds Louis B. Howard as head of the food technology department. Howard, first department head, is now associate director of the agricultural experiment station.

Appointment of W. Dayton Maclay, a national authority on carbohydrates and the chemistry of forage crops, to head the U. S. Department of Agriculture's farm product utilization research at the Northern Regional Research Laboratory, Peoria, Ill., is announced by B. T. Shaw, administrator of the Agricultural Research Service.

During the last six years Dr. Maclay has been head of the field crop utilization section at the Western Utilization Research Branch, Albany, Calif. He has been in positions of leadership at this branch since 1940.



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PUBLICATIONS

DISEASES. The more prevalent and important soybean diseases are covered in a new circular just issued by the U. S. Department of Agriculture.

The circular is well illustrated showing the symptoms of each disease to aid soybean growers, county agents, extension workers and agri-"cultural research workers in identifying diseases.

Leaf, stem, pod, seed, and root and crown diseases are covered. Such control measures as are now available are suggested for each disease. Also general control measures are discussed. These include diseaseresistant varieties (the most effective), crop rotation, fall plowing, disease-free seed, seed treatment, dusting and exclusion of foreign diseases.

This is a comprehensive publication and should be in every producer's library. Also in preparation is a non-technical farmer's bulletin based largely on the same information but stressing control measures for specific diseases.

DISEASES OF SOYBEANS AND METHODS OF CONTROL. Circular No. 931. U. S. Department of Agriculture, Washington 25, D. C.

alkylated compounds. A method for making many alkylated compounds that may have practical uses has been developed by scientists of Tulane University, New Orleans, for the U. S. Department of Agriculture as part of its oilseeds pro-

These substances are derivable from commercial vegetable oils hence the sponsorship of USDA, whose interest is to expand uses for domestic oils.

These modified products may have a future in a number of fields—and the method of alkylation may be found helpful in preparing various useful materials, including lubricants, additives, plasticizers, insecticides, therapeutic agents, and surface-active agents.

Publications describing the work

ALKYLATION WITH LONG-CHAIN p-TOLUENESULFONATES. II. REACTION OF n-OCTADECYL p-TOLUENESULFONATE WITH MERCAPTANS AND THIOPHEN-OLS. American Chem. Soc. Jour. 73: 4885. 1951.

ALKYLATION WITH LONG-CHAIN p-TOLUENESULFONATES. IV. ALKYLATION OF ALCOHOLS AND AMINES WITH n-OCTA-DECYL p-TOLUENESULFONATE. Jour. Organ. Chem. 18 (4): 378-381, 1053.

ALKYLATION WITH LONG-CHAIN p-TOLUENE SULFO-NATES. V. ANIONIC DISPLACE-MENT REACTIONS OF n-OCTA-DECYL p-TOLUENE SULFONATE. Jour. Organ. Chem. 18: 1591-1593, 1953

ALKYLATION WITH LONG-CHAIN p-TOLUENE SULFO-NATES. VI. FRIEDAL-CRAFTS RE-ACTION OF n-OCTADECYL p-TOLUENE SULFONATE AND BEN-SENE. Amer. Chem. Soc. Jour. 75: 6333-6334 1953

Copies may be obtained by writing Southern Utilization Research Branch, U. S. Department of Agriculture, 2100 Robert E. Lee Boulevard, New Orleans, La.

COSTS. An article by Donald A. Sullivan, soybean accountant of A. E. Staley Manufacturing Co., in N. A.C.A. Bulletin describes how various soybean processors in the U. S. and Canada price and cost their soybeans.

The article shows the methods of handling soybean grain options by different processors, and attempts to trace the effects of these various methods to the interim financial and operating statements.

But, as one processor expresses it, "There is no true clearly-defined

overall uniform accounting procedure for all lines of business, or all the people in one line of business."

A SURVEY OF COST PRACTICES OF SOYBEAN PROCESSORS. By Donald A. Sullivan, soybean accountant, A. E. Staley Manufacturing Co., Decatur, Ill. N.A.C.A. Bulletin, February 1954, pages 772-783. National Association of Cost Accountants.

MISCELLANEOUS

EUROPEAN MARKETS FOR UNITED STATES FATS AND OILS. By Paul E. Quintus, head fats and oils division, Foreign Agricultural Service, U. S. Department of Agriculture. Foreign Agricultural Report No. 75. Foreign Agricultural Service, U. S. Department of Agriculture, Washington 25, D. C.

PRELIMINARY STUDIES ON THE APPLICATION OF CERTAIN CHLORINATED SO L V E N T S TO SOYBEAN OIL EXTRACTION. By Lionel K. Arnold and Robert M. Carvey, Iowa State College. Journal of American Oil Chemists' Society, February 1953. 35 E. Wacker Drive, Chicago 1 III

GROWING SOYBEANS IN MISSOURI. A 4-H CLUB PROJECT. By J. R. Fleetwood. 4-H Circular 117. May 1953. Agricultural Extension Service, Columbia, Mo.

LETTERS

"Let's Be Frank"

TO THE EDITOR:

I have been following with interest your comments about fair price support levels for soybeans and cottonseed and have particularly noted the heavily loaded statistical picture of price relationships given by Louis H. Bean on page 20 of the March issue.

I feel sure that you and Mr. Bean both realize that the historical price of raw materials and products has

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meaning only in relation to market demand in the present and foreseeable future.

Until 1951 there was no support price for cottonseed. In spite of this fact, the price of soybean products was above that of cottonseed products in every year except 1946 and 1950 according to the chart. In 1952 and again in 1953, the price of soybean products ranged well above that of cottonseed products in spite of the fact that cottonseed products were being held from the market in substantial quantities.

However, the result of this withholding of products has been a distortion of consumption and values which cannot be calculated by projecting a chart. In 1952, when the government took over almost half the cottonseed oil produced, we saw a drastic curtailment of cottonseed oil consumption, with the free market as much as 5 cents a pound (crude basis) above soybean oil as against a normal difference of about one-half cent.

Cottonseed meal, which used to sell about even with soybean meal (Memphis versus Decatur basis) was also withheld from the market due to an arbitrary and artificial resale price by the government.

The result of these actions is a loss of markets which even a lowering of prices seems insufficient to overcome. Witness the fact that most of this season crude cottonseed oil has sold at a price equal to or lower than soybean oil, in spite of the tendering of over 5,000 tanks to the government. Witness also the fact that the Memphis market on soybean meal (Decatur basis) is approximately \$18 a ton higher than cottonseed meal, and still the cottonseed meal market is sluggish. Over two hundred thousand tons have been taken into inventory by the government. Government buying of linters increased the dependence of cellulose consumers on wood pulp sources. These consumers cannot readily be regained.

What does all this prove?

1—A market, once lost, can only be regained at the cost of substantial price concessions, if it can be regained at all.

2—What was formerly a normal price relationship can no longer be considered normal in the light of substantial changes in consumer buying.

3—A price relationship between soybeans and cottonseed which fails to take into account the realities of the present market demand can only tend to perpetuate an unfair competitive imbalance to the ultimate detriment of the cotton producers and the cottonseed industry.

Everyone who knows anything about the cottonseed and soybean industries knows that soybeans gained

a tremendous advantage in 1952 when both were at 90 percent of parity. It is also well known that in 1953 large quantities of cottonseed products were sold to the government even with a 75 percent support level against 90 percent for soybeans.

I also believe it is well known that 75 percent for cottonseed against 80 percent for soybeans would again price cottonseed products out of the market. If this is the intention of the American Soybean Association then please be frank about it and leave off the dubious statistics.—Paul Keller, president, Central Oil & Milling Co., Clayton, N. C.

Wants Export Control

TO THE EDITOR:

We are wondering if you can tell us just what is meant by official standards of soybeans. For instance, we were recently advised by the PMA, Washington, D. C., that there is no control over export buying of soybeans, that they are free to impose at will any terms they might want to buy on at any time, and are within their rights.

This may be so, but why should the exporters be in a position to dictate terms that they will buy on, when there is much more at stake than just the exporter's profit? If this is the case, then we need a government-owned operation to sell through, which I am not in favor of. The grain buyers are compelled by competition to sell on the highest market, which of course is our export market.

In order that the backbone of our country be protected, we want a law which will govern the scale of discounts applied to any particular grade of grain. This scale of discounts and grades to be used as a strict guide to buying and selling, if sold by grade. Also, in this law, we want a premium for all grain that grades above No. 2.

The only thing that the farmers and the elevators can do in cases like this is to try and get the ball rolling through people like yourselves and others who can and will have a voice, and I mean a loud voice in these matters.

The reason for this letter is this, for instance: A new ruling set forth by exporters in November AFTER soybean harvest, pertaining to foreign matter. This year the elevators will lose on this ruling, but next year the burden will fall on the farmers because the elevators will have to buy exactly as they sell.

For this reason we need this law passed before the 1954 crop of grain is harvested, if possible.—D. L. Atkinson, general manager, Grain Storage Co., Indianola, Miss.

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SEED AUCTION. Hardome variety soybean seed sold for \$50 to \$75 at the recent Middlesex Fair in London, Ontario.

Hardome Seed Sells For \$75 a Bushel!

AN ALL TIME record price at a soybean seed auction was undoubtedly set when a two-bushel lot of seed of the new Hardome variety sold for \$75 a bushel at the Middlesex Fair and Food Show at London, Ontario, Mar. 6.

Other two-bushel lots of Hardome sold for \$71, \$70 and \$50 per bushel, respectively. The high-priced seed was exhibited by W. K. Riddell & Sons, Granton, Ontario, and W. A. Vail & Son, Denfield. Purchasers

were W. E. Reid, Chatham, and Ron Macfie, Appington.

The Hardome variety was originated at the Dominion Experiment Station at Harrow. It is adapted to western Ontario and the northern United States. This was the first known auction of Hardome seed.

The average price of 36 bushels of soybean seed sold at the Middlesex Fair was \$18.65 a bushel.

Herb Jackson, Port Stanley, Ontario, was grand champion and intercounty winner in soybean exhibits at the Middlesex Fair. County winner was Wallace Laidlaw, Wilton Grove, Ontario.

-sbd-

Improves Doughnuts

Addition of soy flour as an ingredient to doughnuts is an improvement recently recommended by Baking Industry magazine to correct dryness. Soy flour apparently helps doughnuts and other yeast-raised fried products to retain their freshness.

This is one reason why housewives ask for bakery and package goods that contain soy flour, states the Soya Food Research Council, Washington, D. C. They know that in addition to increasing the protein content of pie crusts, cakes, rolls, muffins, waffles, pancakes and bread, it lengthens the life of these foods when they are brought into the home.

This characteristic of soy flour is one that has been carefully studied in the experimental kitchens and laboratories of major manufacturers such as Spencer Kellogg & Sons, the Glidden Co. and Archer-Daniels-Midland Co.

Grading Standards Mean Dirty Beans

PRESENT soybean grade standards actually encourage the marketing of dirty soybeans.

Since restrictions were relaxed in 1949, the percent of foreign material in soybeans arriving at principal markets has doubled. According to a survey of six Midwest markets by the U. S. Department of Agriculture, 62 percent of the soybeans received in 1949 contained less than 2 percent of foreign material. In 1953 only 31 percent contained less than 2 percent.

Until 1949 only 2 percent of foreign material was allowed in No. 2 soybeans. Since then 3 percent is allowed.

According to L. F. Stice, University of Illinois farm economist, tightening of these standards would improve the soybean market in four ways:

1—It would increase the value of the soybeans. Prices are now based on 3 percent of foreign material. Each increase of 1 percent in foreign material actually decreases prices 1 percent. At present prices, that decrease amounts to three cents a bushel.

2—It would make U. S. soybeans more attractive to the foreign market.

3—It would reduce shipping charges. It costs as much to ship a pound of trash as to ship a pound of beans.

4—It would encourage producers and dealers to keep dirt and trash out of beans. Under the present system, in which there is no premium for beans with less than 3 percent of foreign material, the producer of clean beans is actually penalized.

-sbd-

Blaw-Knox Promotes

Horrall Harrington has been appointed sales engineer for the Midwest district by Blaw-Knox Co., chemical plants division, it is announced. He will be located at the

Chicago office, and will offer the processes and engineering - construction services of the company to chemical and industrial clients in a 12-state area.

Mr. Harrington is a civil engineer and holds profes-

and holds professional registration in Pennsylvania and Ohio. He has held engineering positions in chemical plants division over a seven-year period, and had earlier employment with American Bridge Co., Carnegie-Illinois Steel Corp., and H. K. Ferguson Co.

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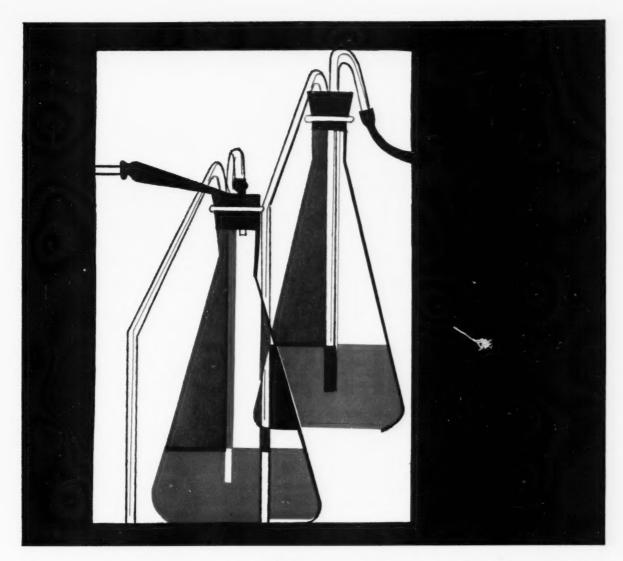
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GRITS and FLAKES ... from the World of Soy

- ♦ Construction of a new feed plant for manufacturing Wayne feeds in Gainesville, Ga., is now under way by Allied Mills, Inc., Chicago. It will serve broiler growers in the area. Allied Mills has been recognized as helping to develop north Georgia into a leading broiler production area.
- ♦ A soil microbiology conference will be held at Purdue University June 21-24. It will be sponsored by the American Society of Agronomy, the Soil Science Society of America and Purdue University. Reservations may be made direct through the Union Club, Purdue Memorial Union, West Lafayette, Ind. Meeting will feature papers by scientists and administrators considering the place of soil microbiology in soil science.
- Almost complete program for the 45th annual meeting of the American Oil Chemists' Society is published in the March issue of the Journal of AOCS. It includes nearly 40 papers to be given in concurrent sessions. Meeting will be held at the Plaza Hotel, San Antonio, Tex., Apr. 12-14.
- ◆ Rock Island Lines has issued a new set of soybean maps for Illinois, Iowa, Minnesota, Arkansas, Kansas, Missouri and Nebraska. Maps show production by counties for 1943, 1951, 1952 and estimated production for 1953.
- ♦ Link-Belt Co. has announced the appointment of John D. Riley as district manager of its Cleveland, Ohio, office. Riley has been district manager of Link-Belt's Newark, N. J., office for the past five years. He succeeds Paul Wheeler, who passed away Jan. 20.
- Four top executive promotions in the Chase Bag Co. were announced by Francis H. Ludington, president, following the company's recent annual meeting. F. H. Ludington, Jr., assistant vice president, was elected vice president. William N. Brock, general sales manager, was elected vice president and general sales manager. A. H. Nuhn, assistant treasurer, was elected vice president. And M. J. Bender, assistant secretary, was elected secretary.
- ◆ A 16-mm sound motion picture film in color depicting proper weed control procedures in cotton with Chloro-IPC has been produced by the Columbia-Southern Chemical Corp., One Gateway Center, Pittsburgh, Pa., and is available for showing to interested groups. Running time of the film is 18
- ◆ The Houston Port Bureau announces the appointment of Charles A. Barrows as Midwestern representative with offices in the Board of Trade building, Kansas City, Mo.
- ♦ Frank W. Kerr, sales manager for the Fulton Bag & Cotton Mills' plant at New Orleans, has been appointed sales manager of Fulton's new combined textile and multiwall operations at Los Angeles. Louis J. Even has been named sales supervisor at New Orleans, replacing Kerr. He has been traveling in a sales capacity for Fulton in Louisiana, Mississippi and
- Bemis Bro. Bag Co. has announced the appointment of D. A. Clarke as assistant manager of the company's Indianapolis plant and sales division. He joined Bemis in 1938 and has been in the Minneapolis general sales division since 1940. He will take up his new duties about May 1.

Joins Memphis Firm

Giles A Coor, Jr., 27, joined the firm of L. B. Lovitt & Co., Memphis. Tenn., cottonseed meal and soybean oil meal brokers, Mar. 8, Fred C.

Lovitt has announced. He will handle



soybean, soybean oil meal and cottonseed meal futures contracts for the firm's customers under Mr. Lovitt's supervi-

Giles A. Coor Mr. Coor, a Memphian by birth, attended the Universities of Mississippi and Virginia and served in the Army Air Force in 1944 and 1945. He has been an officer in the National Bank of Commerce for the past four years.

Iowa Representative

The E. E. Beatty Co., Cedar Rapids, Iowa, has been appointed sales representative for Iowa for the Bryant Engineering Co.,



Port Huron, Mich., John W. Miller, sales manager announces. E. E. Beatty,

owner of the Beatty Co., is well known as a designer and equipment supplier for feed mills and elevators in the Iowa

E. E. Beatty

area. The firm will stock Bryant equipment and serve as a parts depot for the Iowa area. They will also offer service and installation for the complete line.

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"Built like a threshing machine" with rugged steel cylinder, extra-long straw rack, and incomparable Case Air-Lift Cleaning, the six-foot Model "A" (top) is America's favorite. On the PTO of an economical 2-plow tractor like the Case "VAC," the Case 5-foot "F-2" Combine (bottom) is outstanding. They can't be beat in grains and seeds, either.



CASE

- ♦ Scott County Mill Co., Sikeston, Mo., has completed construction of a new feed mill with a daily capacity of 300 tons. Paul O. Berg, Fort Wayne, Ind., construction engineer, drew the plans and supervised the construction.
- ♦ Edward M. Muldoon, general manager of LaChoy Food Products, Archbold, Ohio, division of Beatrice Foods Co., announces the company has completed conversion to all new can sizes, attractive new colorful labels and dinner cartons and ultra-Modern Soy Sauce no-drip bottles with new contrasting red caps. In general, the change has been from a No. 2 can to the 303 size.
- ♦ Appointment of Charles A. Joyce as sales manager of the Glidden Co.'s feed mill division at Indianapolis has been announced by James C. Rankin, general manager of the division. Mr. Joyce joined the Glidden organization in 1948 and became assistant general manager of the feed mill division in 1950.
- ◆ Cargill, Inc., has begun construction of 10-million-bushels grain storage at its Minnesota River terminal below Minneapolis. The new elevator will increase Cargill's total terminal storage space to 100 million bushels.
- ♦ Carl C. Farrington, Archer-Daniels-Midland Co., Minneapolis, was elected chairman of the National Grain Trade Council at the annual meeting in Washington.
- ♦ O. A. Cooper Co., Humboldt, Nebr., observed its 75th anniversary with a jubilee dinner to honor Guy L. Cooper, chairman of the board. He has been actively associated with the company for 55 years.
- ♦ Daniel W. Biddle, 83, prominent Remington, Ind., farmer and insurance executive, died recently at his home. He was father of Chester B. Biddle, Indiana director of the American Soybean Association.
- ◆ Firm's new structurally modified fatty acids are described in a booklet entitled, "Emery Modified Fatty Acids," just issued by Development and Service Department, Emery Industries, Inc., 2504 Carew Tower, Cincinnati 2, Ohio.
- Geo. M. Strayer, Strayer Seed Farms, Hudson, Iowa, was elected president of the Iowa Republican Farm Council at the annual meeting in March, succeeding Howard L. Roach who became president of the National Republican Farm Council.

USDA Specialist On An African Mission

The United States Department of Agriculture has sent a commodity specialist to Africa to obtain first-hand information regarding the exportable production there of vegetable oils and oilseeds, principally palm oil, palm kernels and peanuts. His study will cover fats and oils which compete with United States products in world markets as well as tropical oils needed in this country.

The investigation is to be conducted by Volorous H. Hougen of the Foreign Agricultural Service.

Mr. Hougen, who left about Jan. 20, has had extensive experience in connection with production of and trade in fats and oils. From 1950 until recently he represented fats and oils in the Department of Agriculture's Office of Requirements and Allocations.

The marketing specialist will conduct his study in British West Africa, French West Africa, Liberia, Portugese Guinea and Angola, French Equatorial Africa and the Belgian Congo.



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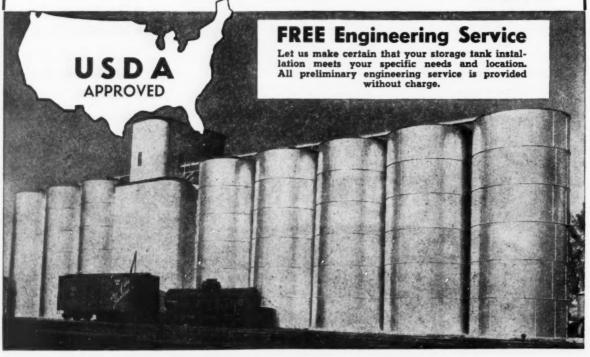
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NEW PRODUCTS and SERVICES

INOCULATION BOOKLET. Counting on soybean bacteria left over in the soil by the previous crop can be costly, farmers' experience shows. Experiment station studies



prove that soybean bacteria are easily killed by drought, wet spells, sour soil, and many other things. Too, leftover bacteria may lose their power to benefit the next crop.

Illinois farmers ran tests on this last year. They planted some inoculated soybeans, and some without inoculation, on old soybean land. Freshly inoculating the seed paid a net profit of up to \$11.51 an acre, even though soybeans had been raised on the same land before.

This information, with supporting experiment station facts, is de-

tailed in a new illustrated booklet. Free copies of "Why Inoculate Soybeans Every Time?" prepared by the Nitragin Co., are available from dealers and from Soybean Digest 4a, Hudson, Iowa.

STEEL BUILDING. An inexpensive revolutionary new building of patented trussless construction, which several unskilled persons can erect in only hours, is aimed primarily for the farm and industrial markets. The building is the result of 14 years of engineering research by the Wonder Building Corp. of America.

The building can be produced in a variety of sizes ranging from 20 feet wide and 9 feet 6 inches high, to 100 feet wide and 35 feet high. The length is virtually limitless.

For grain storage, the building requires no supports of any kind and eliminates bird roosts. And

the building's strength is able to withstand grain expansion without added construction support. A few of the other uses include storing farm machinery, housing cattle and other livestock, housing a machine or workshop or even serving as a dwelling unit.

For further information write Soybean Digest 4d, Hudson, Iowa.

V-BELT DRIVE. A six-page interim bulletin that provides in condensed form the necessary information on the new method of calculating the horsepower capacity of a "Texrope" V-belt drive has been released by Allis-Chalmers Manufacturing Co.

The belt ratings resulting from this new method take into consideration effect of belt length, ratio of the diameters of both driving and driven sheaves on the horse-power rating of the belt, and resultant belt life.

The new formula provides means of determining the ratings for both standard construction and high capacity "Texrope" V-belts.

Copies of the advance bulletin, 'Guide for Figuring 'Texrope' Drives,' may be obtained by writing Soybean Digest 4f, Hudson, Iowa.

WEED TOOL. A new, larger model of the cultivating tool "Weed-Controlors" has been announced by the Russel Manufacturing Co.

Front shoes of the implement clear and level the ground, shoving stones, weeds, crust and trash away from the plant rows. The rear shoes working in the same path, then push a constant controlled amount of

clean, moist fresh soil evenly around the plants covering the weeds. The quantity and direction of the dirt can be accurately controlled, so there is no danger of covering small plants.

Advantages claimed for the Weed-Controlor method of cultivating: (1) elimination of weeds in the rows; (2) faster tractor speeds in small crops; (3) stops root pruning; (4) in-

creased yields because of plant and root protection and weed elimination.

For further information write Soybean Digest 4g, Hudson, Iowa.

PETROLEUM SOLVENTS. A handy buyers' guide to petroleum solvents and their properties has been prepared by American Mineral Spirits Co. It is a fourpage, file-type folder designed to save time in choosing the correct solvent for individual product needs.

It contains a comprehensive list of aliphatic naphthas, paraffine hydrocarbons, and aromatic hydrocarbons and solvents—and their typical properties.

Copies are offered free on request. Write Soybean Digest 4c, Hudson, Iowa.



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WASHINGTON DIGEST

Fight on Cottonseed Price

1954 CROP. With average weather, a 1954 soybean crop of around 350 million bushels appears probable.

This is based on the Crop Reporting Board's March report of farmers' intentions to plant, plus an expected further increase in acreage of soybeans

The intentions report indicated plantings this year of 18,075,000 acres, 2 million acres above 1953. Harvested acres would total about 16,200,000 with a normal proportion of the total harvested as beans. At five-year average yields, this harvested acreage would produce a crop of around 340 million bushels.

However, the intentions report showed only a slight total reduction in corn acreage. At the time farmers gave their report on planting intentions they had not received individual farm allotments.

Most officials think corn acreage will come down anywhere from 2 to 3 million acres below the 81 million reported, and that at least 1 million of this will go into soybeans, making the acreage for harvest something over 17 million.

CCC SALES. The sale of Commodity Credit Corp. stocks of dry skim milk for feed was being considered by the Department of Agriculture as the Digest went to press.

The plan has been under discussion for several weeks. It was taken up in late March with representatives of the soybean, flaxseed, and cottonseed advisory committees. along with other matters.

CCC has about 540 million pounds of non-fat dry milk solids in its inventory-about 270,000 tons. It already has disposed of around 255 million pounds in addition to present stocks, mainly through relief channels of one kind or another.

CCC acquires milk through its dairy price support program. The corporation has close to 17 cents a pound in its present stocks.

Dry skim milk is one of the more valuable feeds, high in vitamin content. Its digestible protein content is 31 percent, compared with 55 percent for fish meal, 42 percent for meat scraps, 33 percent for cottonseed meal, 29 percent for linseed meal, and 37 percent for soybean oil

The average January manufacturers' price for dry skim milk as animal feed was reported by USDA as \$10.14 per hundred pounds.

Object of the disposal plan is to move the surplus dry milk into use, with some return to the Government. Disposal of stocks so far has been either by outright grant or only at token prices.



By PORTER M. HEDGE Washington Correspondent for The Soybean Digest

COTTONSEED. The battle has been joined over price support for the 1954 cottonseed crop in relation to that for sovbeans.

Some groups in the cottonseed industry have been recommending no price support for cottonseed produced this year-a proposal which there is some support within the Department of Agriculture.

However, at USDA's late March meeting with representatives of the cottonseed and soybean advisory committees (see page 6), the cottonseed people abandoned the no price support approach. Instead, they recommended a support level of 65 percent of parity-about \$43.75 a ton (based on February parity) compared with the present 75 percent support of \$54 a ton.

Soybean industry representatives squared off against the 65 percent plan, arguing that it was only equitable to maintain cottonseed support at its present 75 percent level if soybeans were to be maintained at 80 percent-\$2.25 a bushel, based on February parity.

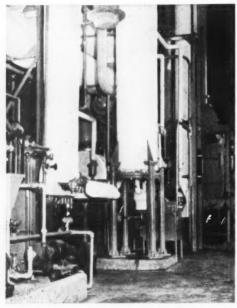
Soybean support has been set at the 80 percent level. The final decision on cottonseed is still to come.

TO USDA. Walter C. Berger of Des Moines, Iowa, and Baltimore, Md., is the new associate administrator of USDA's Commodity Stabilization Service which handles price support, commodity buying and production adjustment activities. Berger is well known to the soybean industry, having served for a number of years as president of the American Feed Manufacturers Association.

He was in charge of the feed management division of War Food Administration during 1943-46. Berger recently became executive vice presideat of the Shea Chemical Corp. in Baltimore.

-shd-

The Gulf. Mobile & Northern Railroad has announced a new lower export rate for soybeans moving from Chicago to the Gulf of 251/2 cents per hundredweight, effective Apr. 19 and continuing 90 days.



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- MARKET STREET -

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Burdette-G. A. Hale, Hale Seed Farms, 6,000 bu. registered Hale Ogden 2.

Mulberry—Paul R. Alexander, 750 bu. state certified S-100; 2,000 bu. state certified Ogden.

ILLINOIS

Aroma Park—L. L. Lowe, 2,000 bu. certified Harosoy.

Maple Park-Chris Johnson, Rt. 1, 1,200 bu, certified Blackhawk

San Jose—Kelly Seed Co., 2,000 bu. certified Lincoln; 1,200 bu. non-certified Lincoln; 6,000 bu. certified Hawkeye; 1,200 bu. non-certified Hawkeye; 500 bu. certified Harosov.

Ursa—Frank W. Lewis, 500 bu, certified Harosoy, \$5 per bu. fob Ursa.

Whitehall—Nathaniel J. Bucklin, Jr., Ph. 299R4, or Allyn B. Nichols, Ph. WH 276R2, Rt. 1, 400 bu. certified Lincoln; 500 bu. certified Hawkeye; 600 bu. certified Adams.

INDIANA

Francesville—Fred Gutwein & Sons, certified Hawkeye; certified Harosoy; certified Blackhawk.

Remington—Chester B. Biddle, 500 bu. red tag certified Harosoy.

Valparaiso—L. K. Wyckoff, Wyckoff Hybrid Corn Co., Rt. 3, 800 bu. certified Harosoy; 400 bu. certified Richland; 400 bu. certified Blackhawk; 500 bu. certified Hawkeye; 400 bu. uncertified Monroe; 400 bu. uncertified Korean.

IOWA

Lytton-Fred H. Hinrichs, 350 bu certified blue tag Blackhawk, germination 90 percent.

Marcus—Sand Seed Service, 12,000 bu. certified Hawkeye; 5,000 bu. certified Adams; 500 bu. certified Lincoln; 12,000 bu. uncertified Hawkeye; 2,000 bu. uncertified and certified Blackhawk.

Mechanicsville—Alvin Davidson & Sons, 600 bu. certified blue tag Blackhawk, germination 90 percent.

MINNESOTA

Waterville-Clarence Bohlen, 300 bu, certified Blackhawk.

MISSOURI

Bragg City-Jeff Wade, Jr., state certified Ogden and state certified S-100.

St. Louis—Cypress Land Farms Co., 314 Merchants Exchange, uncertified Ogden; certified Perry; uncertified S-100; certified Dorman; certified Adams.

NEBRASKA

Wisner-Roadside Gardens, Rt. 1, 2,000 bushels Blackhawk from certified seed.

NORTH CAROLINA

Selma—Gurley Milling Co., Inc., 4,000 bu. uncertified Roanoke; 2,000 bu. Ogden select; 2,000 bu. Black Wilson; 500 bu. S-100 select; 1,000 bu. JEW 45 select; 1,000 bu. Clemson select; 500 bu. Woods Yellow select; 500 bu. certified Jackson.

NORTH DAKOTA

Hankinson—George Bircken, Rt. 3, 500 bu. certified Blackhawk.

VIRGINIA

Claybank—Louis Groh & Son, 10,000 bu. uncertified Black Wilson; 50,000 bu. uncertified Ogden.

Norfolk—Davis Grain Corp., 5,000 bu. uncertified select Ogden.

WISCONSIN

Granton-Ben H. Beekler & Son, 400 bu. certified Flambeau.

ONTARIO

Chatham—Borrowman Grain Co., Box 155, 1,500 bu, registered Harosoy; 1,000 bu, certified Lincoln; 1,000 bu, certified Hawkeye; 1,000 bu, registered Harmon.

Chatham—St. Clair Grain & Feeds, Limited, 4,000 bu. registered Harosoy: 2,000 bu. certified Lincoln; 1,500 bu. certified Hawkeye.

Ridgetown-W. R. Sifton, Rt. 1, 1,000 bu. registered No. 1 Harosoy.

- s b d -

Mellorine Laws Lose

A mellorine bill (HB1801) failed to come to a vote in the South Carolina Senate due to a filibuster by its opponents in March, after it passed the House.

A similar bill was introduced in Mississippi but failed to receive a favorable vote by the House agriculture committee.



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releases the full growth promoting power. The result? 20% greater protein efficiency . . . and extra gains worth as much as \$91 more per ton than those produced by some soybean

This is nothing new for ADM. For 25 years, it has been a leader in creating new and better uses for the soybeans you grow. Scores of products born in ADM laboratories and produced in ADM processing plants play vital roles in America's daily life.

This is the way your markets are built ... and this is how they will continue to grow.

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- Admex 710 (a plasticizer for vinyl resins)
- Archer "S" (Salad Oil)
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- Archer 50% Low Fibre Soybean Oil Meal
- Archer Booster Feeds
- ADM Soybean Brew Flakes
 R-Lecin (Soybean Lecithin)
 - Bakers Nutrisoy
 - Daniels' Supreme

 - Nutriwhip
 - Packers Granular
 - Paint Vehicles
 - Soya Fatty Acids
 - Soy Flour

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IN THE MARKETS

● FACTORY USE VEGETABLE OILS for December and January as reported by Bureau of the Census. (1,000 lbs.)
PRIMARY MATERIALS: FACTORY PRODUCTION AND CONSUMPTION, AND FACTORY AND WAREHOUSE STOCKS, JANUARY 1954DECEMBER 1953

	TAKE.	CEMBE	F 1500				
		ctory uction		ctory imption			
Primary materials	Jan. 1954	Dec. 1953	Jan. 1954		Jan. 31 1954		
Cottonseed, crude	234.465	232,230	198.827	*224,117	183,105	*148,742	
Cottonseed, refined	183,279	200.423	131,421	*135.286	11,152,554	*1.109.455	
Peanut, crudet	6,651	6.155	4,223	*6.363	4,241	3,743	
Peanut, refined	3,950	6,005	2.776	2.741	5,513	5,672	
Corn, crude	19,900	20.437	20.061	19.962	14.749	14.42	
Corn, refined	18,611	18,585	16.984	16,965	4,898	4,153	
Soybean, crude	228,433	226,320	207,819	186,512	142,947	122,021	
Soybean, refined	191,788	172,446	174,010	163.834	99.466	80,822	
Olive, edible	531	92	572	157	5.292	4,439	
Palm, crude			3,862	2,507	\$16,980	\$14,321	
Palm, refined			1,189	891	540	476	
Coconut, crude	38,337	35,294	42,951	42.673	\$67,277	\$66,970	
Coconut, refined	27,982	26,569	22,544	22,369	16.249	13.843	
Palm kernel, crude			2,252	4.234	1.533	2,878	
Palm kernel, refined Vegetable foots		2,354	1,325	2,340	208	528	
(100% basis)	23,288	21.637	14,946	12.556	43.776	45,669	

*Revised. †Commodity Credit Corporation, U.S. Department of Agriculture reported 901,584,000 pounds of refined cottonseed oil owned by them on Jan 31, 1954. †Data on production and stocks held at crude oil mill locations, collected by Agricultural Marketing Service, U.S. Department of Agriculture. †Data for stocks of crude palm oil and crude coconut oil are on a commercial stocks basis and do not include figures for stock piles of strategic oils.

FACTORY CONSUMPTION OF VEGETABLE FATS AND OILS, BY USES, DURING JANUARY 1954

USES, DURING JANUARI 1884											
Edible productsInedible products											
	Shortening	Margarine	Other	Soap	Chemicals	Paint & varnish	Lubricants & greases	Other			
Cottonseed, refined	20,513	4.498	1.215		37		12	45			
Peanut, refined			358					152			
Soybean, crude				41		537		1,004			
Seybean, refined	33,404		6.790			7.108	10	4,937			
Vegetable foots	14.946		14.946	10.804							
Hydrogenated cotton-											
seed oil, edible	22,181	30,816									
Hydrogenated soy-											
bean oil, edible	27,516	61,556	954								
Hydrogenated vegetable oil.											
other, edible	1,696	1.482	802								

• STOCKS. Production and Marketing Administration's commercial grain stocks reports. (1,000 bu.)

U. S. Soybeans in Store and Afloat at Domestic Markets

	Mar. I	Mar. 9	Mar. 16	Mar. 23
Atlantic Coast	1,214	1.537	1.447	1,399
Gulf Coast	1,712	1.688	1.972	2,311
Northwestern and Upper Lake		1.090	1.262	1,353
Lower Lake	4.813	4.972	5,155	5,375
East Central	543	557	566	466
West Central, Southwestern				
& Western	1.469	1.474	1,453	1,406
Total current week	10,727	11,318	11.855	12,310
Total year ago	9,590	8.960	10,094	9,087
U. S. Soybeans in Store	and Aflo	at at Canad	ian Market	
Total current week	274	214	160	40
Total year ago	457	332	201	201
Canadian Soybeans in S	tore and	Afloat at U.	S. Markets	
Total current week	0	0	0	0
Total year ago	. 0	0	0	0
Total North America	n Commer	cial Soybea	n Stocks	
Current week		11.532		12,350
Year ago	10.047	9.292	10.295	9 288

• IMPORTS. A total of 85,400 pounds of soybean seed was imported into the U. S. under the federal seed act between July 1, 1953, and Jan. 1, 1954, reports Agricultural Marketing Service.

Total imports, July 1 through Feb. 28, were 161,100 bushels, compared with 44,300 bushels for the same period a year ago.

• SHORTENING. Standard shortening shipments reported by the Institution of Shortening and Edible Oils, Inc., in pounds:

is promitted.	
Feb. 27	4.725,383
Mar. 6	5.784,421
Mar 13	6,642,946
Mar 20	7 625 726

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K. I. WILLIS CORPORATION
MOLINE, ILLINOIS

• EXPORTS U. S. exports of soybeans and oil for January, as reported by the Foreign Agricultural Service of the U.S. Department of Agriculture.

3.662.894 bu Refined, but not further processed Refined, deodorized and hydrogenated 828,927 lbs 86,802 lbs

Converted to a soybean equivalent basis the exports

for January amounted to 3,995,561 bushels.

U.S. exports of soybeans during 1953 reached an alltime high of 41.6 million bushels, according to USDA's Foreign Agricultural Service. But soybean oil exports of only 24,851 tons were the smallest since 1945.

Actual bean shipments represented almost 90 percent of the total bean and oil exports, which aggregated 46.5 million bushels, bean equivalent.

Soybeans: Imports and exports (1,000 bu.) Monthly data Oct -Jan Feb. Oct -Jen. Jan. 1954 Imports 1 2/ n Exports 3,511 2,256 3,663

1/ Unofficial estimates based on boat loadings, inspections, and Canar reports of U. S. imports. 2/ Less than 500 bushels. Official U. Bureau of the Census data except for February 1954.

Total exports of beans and oil, bean basis, in 1953, however, were only slightly larger than in 1952 but were

United States; Soybean and soybean oil exports, 1953 with comparisons

Soybeans Soybean oil 1/ Country of Average 1935-39 1952 3/ Average 1937-39 2/ 1952 3/ 1953 3/ destination 1,000 bushels Short tons North America: 1.197 4.668 4.366 2.024 Cuba 4/ 1.917 2 521 Other - Total South America 4.670 4,367 Europe: Austria 5/ 696 2,229 Belgium 15 Luxembourg 1,114 3.520 888 270 18 52 Finland 65 95 1,099 667 Germany (Western) 5/ 60 6/ 1,527 1,350 3,318 6/25,066 Iceland 9,092 Netherlands 2.006 5.414 34.001 3.249 Netherlands Norway Sweden Switzerland Trieste United Kingdom 19 1,639 1 59 37 1.131 Yugoslavia Total 3.533 6/6.793 14.435 253 6/88,321 10,782 Asia: 8.744 17 182 Japan 118 22,782 4/ 22 Australia & Oceania. Africa Grand total 322 235 3,234 6/112,223 4,793 6/23,683 41,606 24,851

1/ Crude and refined oil converted to crude. 2/ Not separately fied prior to 1937. 3/ Preliminary. 4/ Less than 500 bushels. 5/ included with Germany. 6/ Revised. 7/ Less than 5 ton.

included with Germany. Bureau of the Census.

30.8 million bushels less than the record total of 77.3 million exported in 1951. Bean and oil exports during the past two years have represented 16 percent of the total production for soybeans.

• SUPPORT PROGRAM. 1953-crop soybeans put under price support and loans outstanding as of Feb. 15, 1954. (1,000 bu.)

Qu	antity put u	nder loan	Total quantity		Total put
Farm- stored	Warehous stored	e- Total	of loans out- standing (1)	Purchase agree- ments	under price support (2)
12,946	17.422	30,368	15,213	1.373	31,741
(1) The	difference	between the	total quantity	placed under	loon and

the total quantity outstanding is for all practical purposes the quantity redeemed. (2) Total placed under price support is the sum of the total put under loans and purchase agreements.

1953-crop soybeans put under price support and loans outstanding, Jan. 31, 1954

	0		day toon			2/Total
	Farm- stored	Ware- house- stored		1/Total loans out- standing	Purchase agree- ments	put under price support
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
Alabama	29.730	4.272	34.002	21,397	0	34.002
Arkansas	121,806	304,247	426,053	236,526	1.700	427,753
Delaware	2.598	0	2.598	2,598	0	2,598
Florida	1.739	0	1,739	1,739	450	2,189
Georgia	19,832	3,438	23,270	22,593	0	23,270
Illinois	1.298,364	3,592,856	4,891,220	1,321,362	333,981	5,225,201
Indiana	961,258	282,225	1,243,483	448,640	27,455	1,270,938
Iowa	4.837,042	6.625,488	11,462,530	6.713.102	454,520	11,927,050
Kansas	145,617	10,886	156,503	126,873	1,880	158,383
Kentucky	19,485	51,001	70.486	23.457	0	70,486
Louisiana	781	0	781	781	0	781
Maryland	436	0	436	436	0	436
Michigan		13,019	25,144	14,684	7.535	32,679
Minnesota	3,246,112	4.414.421	7,660.533	4.003,784	413.644	8,074,177
Mississippi	26,831	89,678	116,509	44,865	0	116,509
Missouri	1.247,713	1.036.207	2,283,920	1.217,513	37,680	2,321,600
Nebraska	117.659	77,632	195,291	105,741	9.500	204,791
New Jersey	4,087	0	4.087	3,631	0	4,087
New York	229	0	229	229	500	729
North Carolina	10.575	0	10,575	8.206	0	10,575
North Dakota	26,579	33,224	59,803	44,610	17,988	77,791
Ohio	415,664	361,615	777,279	314,339	12,831	790,110
Oklahoma	24,431	0	24,431	18,826	1,225	25,656
Pennsylvania	211	0	211		0	211
South Carolina	94.232	31,557	125,789		0	125,789
South Dakota	221,239	86,008	307,247	200,759	37,998	345,245
Tennessee	37,904	394,246	432,150		1,500	433,650
Texas		7,785	7,785		0	7,785
Virginia	0	2,725	2,725		0	2,725
Wisconsin	21,932	0	21,932	12,382	2,200	24,132
Total	12.946.211	17,422,530	30.368,741	15,213,227	1,372,587	31,741,328

Total 12.946.211 17.422.530 30.368.741 15.213.227 1.372.587 31.741.328 1/2 The difference between the total quantity placed under loan and the total quantity outstanding is for all practical purposes the quantity redeemed 2/ Total placed under price support is the sum of the total put under loans and purchase agreements. Agricultural Marketing Service.

• PRICES. Average price received by farmers, effective parity price and price support rates. (dollars per bushel.)

Av	erage	Farr	n Price		Effec	live	verage prices as percent of parity	averag	ional e price ert rate
Feb. 15 1953		. 15 54	Feb 19	. 15	Feb. 195		Feb. 15 1954	1953 crop	1954 сгор
2.63	2	83	2.	97	2.8	2	105	2.56	2.22
Average	farm	and	parity	prices	from	Crop	Reporting	Board.	

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• PROCESSING OPERATIONS. For January and February. Reported by Bureau of the Census.

PRIMARY PRODUCTS, EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS, AND STOCKS, FEBRUARY 1954-JANUARY 1954

Products	Unit	Prod	uction	Shipme	nts and isfers		month cks
Products	meas- ure	Feb. 1954	Jan. 1954	Feb. 1954	Jan. 1954	Feb. 28 1954	Jan. 31 1954
Soybean.							
Cake and meal	tons	438.374	492.738	404,469	463,958	162,520	128,615
Lecithin	1000 lb.	2,261	2.563	1,829	2,376	2,476	2,044
Edible soy flour,							
full fat	tons	502	463	381	471	289	168
Edible soy flour,							
other	tons	5,006	5.010	4,731	5.069	967	692
Industrial soy							
flour	tons	2.575	3.029	2.300	2.877	1.424	1.149

SOYBEANS: RECEIPTS, CRUSHINGS, AND STOCKS AT OIL MILLS, BY STATES, FEBRUARY 1954-JANUARY 1954 (Tons of 2,000 pounds)

	Receipt	s at mills	Crushe	d or used	Stocks	at mills
State	Feb. 1954	Jan. 1954	Feb. 1954	Jan. 1954	Feb. 28 1954	Jan. 31 1954
U. S.	640,062	501,990	566,175	623,353	1,708,444	1,634,557
Arkansas	(1)	(1)	(2)	(2)	25,328	32,546
Illinois	259,325	229,041	218,358	239,112	716,764	675,797
Indiana	71,640	48,555	69,074	77,234	170.564	167,998
Iowa	152,041	98,754	107,581	117,841	278,978	244,518
Kansas	(2)	(2)	(2)	7.133	(2)	(2)
Kentucky	19,586	13,572	13,938	14.669	73,225	67,577
Minnesota	42,024	40,904	49.396	39,964	33,917	32,289
Mississippi	(2)	(2)	(2)	(2)	21,996	22,341
Missouri	(2)	(2)	13,944	21,618	50,608	(2)
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)
North Carolina	110	(1)	(2)	(2)	4.414	(2)
Ohio	71,472	53,349	66,907	75,139	225,011	220,446
Oklahoma		(1)				
All other	33,864	18,620	35,977	30.643	107.639	171,045

(1) Receipts exceeded by reshipments of beans previously received and held in the state. U. S. receipts are on net basis, excluding transfers between mills. (2) Included in "All other" to avoid disclosure of figures for individual companies.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, FEBRUARY 1954-JANUARY 1954

Crude oil	(thousand pour		nds) Stocks		Cake and mea Production		d (tons) Stocks	
State	Feb. 1954	Jan. 1954	Feb. 28 1954	Jan. 31 1954	Feb. 1954	Jan. 1954	Feb. 28 1954	Jan. 31 1954
U, S.	208,706	228,433	45,639	54,258	438,374	492,738	162,520	128,615
Arkansas	(1)	(1)	(1)	(1)	(1)	(1)	248	833
Illinois	82,572	90,045	12,070	18,960	154,460	179,278	69,872	59,442
Indiana	25,222	28,239	8,554	9.368	55.888	62,529	49,333	(1)
Iowa	39,629	42,978	9,247	10.130	88,692	96,759	17,410	13,730
Kansas	(1)	2,653	(1)	1.084	(1)	6,000	(1)	(1)
Kentucky	5.187	5.446	657	560	11.184	11,822	791	642
Minnesota	14,273	14,139	4,999	4,030	32,694	32,431	6,399	1,491
Mississippi	(1)	(1)	(1)	(1)	(1)	(1)	327	443
Missouri	5.296	7,863	2,013	1.524	11,460	17,711	2,350	1,564
Nebraska	(1)	(1)	345	507	(1)	(1)	(1)	(1)
N. Carolina	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3,176
Ohio	23,980	26,720	5,064	5,379	54.586	61,359	3,860	3,631
Oklahoma							(1)	(1)
All other	12,542	10,350	2,690	2.716	29,410	24.849	11,930	43,663

(1) Included in "All other" to avoid disclosure of figures for individual companies. Prepared by Bureau of the Census, industry division, chemicals section.

• SUPPLY AND DISTRIBUTION of the 1952-53 soybean crops, reported by the Agricultural Marketing Service. (1,000 bu.)

	1952-53	1953-54
Carry-over (1)	3,575	10.137
Production	298,052	262,341
Total supply (2)	301,627	272,478
Farm use including seed for season	22,840	26,000
Quantity remaining for processing, export,		
or carry-over	278,787	246,478
Disappearance through Jan. 30 (3)		
Crushed for oil or processed (4)	92,451	88,105
Exported	17,430	27,616
Total	109.881	115.721
Balance on Feb. 1 for processing, export,		
or carry-over	168,906	130,757
(1) Stocks as of Out 1 (3) Imposts postigible	(T) Outober	the country

(1) Stocks as of Oct. 1. (2) Imports negligible. (3) October through January. (4) It is estimated that around 5 million bushels of new crop soybeans were crushed prior to Oct. 1 in both 1952 and 1953. Therefore, 5 million bushels are included in the quantity crushed for both 1952 and 1953.

WATERLESS APPLICATION of Inoculants

Some legume inoculants do not easily mix with seeds and cling to them unless water is added. Observant farmers noticed that the fine, free flowing, humus base of LEGUME-AID quickly coats dry seed. They tried applying it without water and cla.m successful results.

LEGUME-AID

Many farmers now use LEGUME-AID without first moistening the seed, although printed directions will not be changed until government agronomists approve water-

less application. Until then, we suggest that those who wish to try it apply LEGUME-AID without water on only part of their seed and moisten the rest. Then compare results. Trade information on request.



Tell your dealer you want LEGUME-AID

Agricultural Laboratories, Inc.

The INOCULANT in the CARTON

MARIANNA SALES COMPANY

MEMPHIS 1, TENN.

Dealers in

Soybean and Cottonseed Products

Brokers in

Soybean and Cottonseed Meal Futures

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Memphis Merchants Exchange
American Feed Manufacturers Association

Tel. 37-8585-89

Futures No. 2 Soybeans, Chicago

Mar. 6 13 20 27

.70
.65
.60
.55
3.50
.45

- - - May

Soybean Oil Meal, Decatur, Bulk

Pollars per ton — 44% protein --- 41% protein

- March

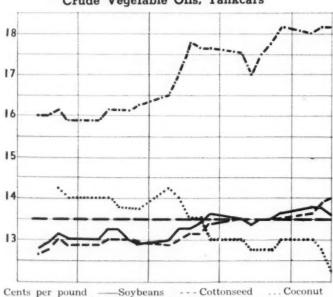
Dollars per bushel

90 88 86

84

87

Crude Vegetable Oils, Tankcars



Soybean Fatty Acids

March Markets

THE SOYBEAN market was erratic in March with frequent violent reversals, but pushed to new six-year highs and more than a dollar above last October.

Meal and oil markets were both stronger, mirroring beans.

Most important factors contributing to higher bean prices:

1—The statistical shortage of soybeans. A U. S. Department of Agriculture estimate showed 131 million bushels of soybeans on hand Feb. 1 compared with 169 million a year earlier.

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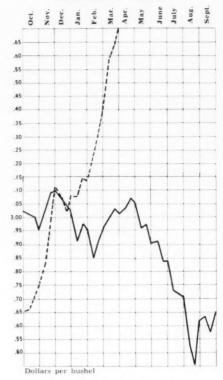
2—Continued aggressive demand by export interests.

The Chicago Board of Trade revised margin requirements on soybeans other than spreading or hedging to 40 cents per bushel on May and July beans, and 30 cents per bushel on September and following months.

Over 600 million bushels in soybean futures were traded in Chicago the first 19 days of March—more than double the entire 1953 crop.

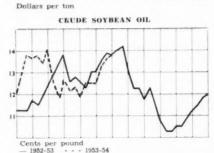
SOAPSTOCKS. Acid soybean soapstocks delivered Midwest advanced from 71% cents a pound to 734 cents during March. Raw soybean soapstocks advanced from 31% to 31½ cents.

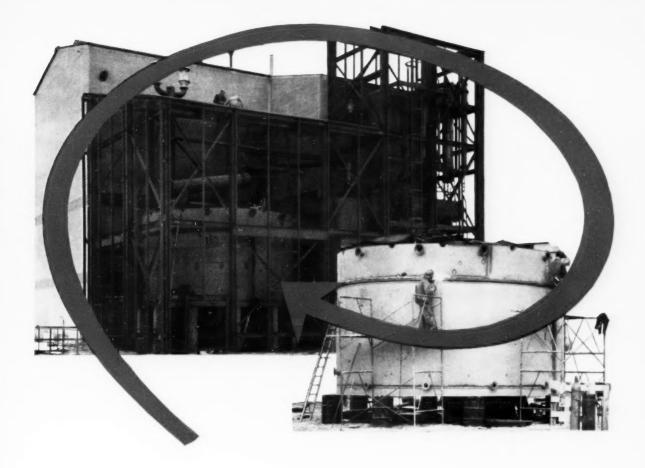
TRENDS AT A GLANCE



SOYBEAN OIL MEAL BULK

90
48
86
84
87
76
76
76
66
66
64
64





BLAW-KNOX puts the skids under a hazardous project to increase Honeymead's capacity

The problem at Honeymead Products Company was...how to add solvent extraction facilities, by assembling and welding metal equipment, to an operating plant using volatile, inflammable solvent.

Honeymead is a fast-growing Minnesota producer of soy oil and meal. Extraction of oil from soybean flakes requires the use of hexane solvent. Cutting, welding and assembling the world's largest Rotocel extractor and integrating it with the existing vapor-filled equipment without interrupting operations necessitated a unique engineering approach.

Blaw-Knox fabricated the 500 ton per day Rotocel, 24 feet in diameter, and distillation equipment four stories in height at a safe distance. As each unit was completed, it was lowered onto cribbing and skidded carefully into place.

Eight months from the start of this project, tie-in of the new facilities with the existing meal-preparation equipment was completed. Integration of these facilities, start-up, test runs and adjustments were completed in two weeks—procedures normally requiring a month. This rapid conversion saved the firm many thousands of dollars.

The solution to Honeymead's problem was the unified design, engineering and construction of equipment, and, more important, a method of operation which enabled the company to maintain the income from its existing plant almost entirely throughout the period of construction.

This is the type of thinking you can expect from Blaw-Knox. Put it to work on your next project. Call Blaw-Knox early in the planning stages.



BLAW-KNOX COMPANY . CHEMICAL PLANTS DIVISION

HEXANE USERS: can't beat Phillips for quality and service!

Depend on Phillips for top quality solvents... and fast, dependable delivery. Made to rigid specifications with no light ends or heavy residues, Phillips 66 Solvents are always pure and uniform. Prompt shipment from Phillips extensive loading facilities assure speedy delivery by tank truck or tank car. Write Phillips for information about solvents for all oil extraction industries.

PHILLIPS PETROLEUM COMPANY

Special Products Division

Bartlesville, Oklahoma

